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EXAMINER
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SPEER, TIMOTHY M

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

**MAILED**

Application Number: 10/711,154  
Filing Date: August 27, 2004  
Appellant(s): JIANG, GUANGQIANG

NOV 17 2006

**GROUP 1700**

\_\_\_\_\_  
Gary Schnittgrund  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 08/08/06 and the supplemental appeal brief filed 08/29/06 appealing from the Office action mailed 05/09/06.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

Schubert, "Surface Stabilization of Y-TZP," British Ceramic Proceedings, 34, pp 157-160 (1984).

US 4,507,224

Toibana

03-1985

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**A. Claim 1-4, 13 and 14 were finally rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert (*Surface Stabilization of Y-TZP*, British Ceramic Proceedings, 34, pp. 157-160, 1984) in view of Hida (USPN 5,192,720).**

Schubert teaches articles comprising an yttria stabilized tetragonal zirconia polycrystal substrate and a coating of a stabilizing oxide formed on the surface thereof (see abstract, for instance). Regarding the recitation of the process limitation "ion beam assisted deposition," this limitation is being given no patentable weight, since an invention recited in a product-by-process claim is a product and not a process. The method by which a claimed product may be made is not germane to patentability of the claimed product unless applicant demonstrates that the recited process step produces a materially different product. See MPEP 2113. In the present case, no such evidence has been adduced. Since the products of Schubert were compacted to a final density of 98 % of theoretical and were fully cubic (page 158, second and third paragraphs), it is the Examiner's position that the coatings are "about 1.0 percent" porous, as presently claimed.

Additionally, Schubert teaches coatings having a grain size of 0.7 micron, within the claimed range of less than "about" 0.5 microns. Moreover, Schubert teaches that the coating layer has a thickness of 5 microns, within the presently claimed range of 1.6 to 10 microns.

Schubert teaches coating layers comprising "stabilizing oxides," i.e., stabilizing for zirconia, such as yttria, ceria, calcia and magnesia (abstract and page 158, last paragraph; "e.g., CeO<sub>2</sub>, MgO and CaO" in reference to "stabilizing oxides" other than yttria). Hida teaches that

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alumina is a stabilizing oxide with respect to zirconia and is functionally equivalent to magnesia, ceria, calcia and yttria (col. 27, lines 1-4, for instance). Therefore, it would have been obvious to one having ordinary skill in the art to employ alumina in the coating layer of Schubert, since Schubert discloses that such layers should be formed of oxides that are stabilizing for zirconia, such as yttria, magnesia, ceria and calcia, and Hida teaches that alumina is functionally equivalent to yttria, magnesia, ceria and calcia with respect to stabilizing zirconia.

**B. Claim 5 was finally rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert in view of Hida as applied to claims 1-4 above, and further in view of Toibana (USPN 4,507,224).**

Schubert in view of Hida was discussed above and fails explicitly to teach that the zirconia is stabilized with about 3% yttria. Toibana teaches that zirconia may be stabilized with 3% yttria (col. 5, lines 28-30). Therefore, it would have been obvious to one having ordinary skill in the art to employ about 3% yttria in the yttria stabilized zirconia of Schubert, since Toibana teaches that 3% yttria is effective to stabilize zirconia. Accordingly, instant claim 5 is considered to be prima facie obvious in view of the applied combination of references.

#### **(10) Response to Argument**

**A. Claim 1-4, 13 and 14 were finally rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert (*Surface Stabilization of Y-TZP*, British Ceramic Proceedings, 34, pp. 157-160, 1984) in view of Hida (USPN 5,192,720).**

With respect to this ground of rejection, appellant's arguments will be addressed in the order presented in the appeal brief. Accordingly, appellant's arguments regarding the product-

by-process limitation recited in independent claim 1 are addressed first, followed by appellant's other arguments.

### **1. Claim 1 Process Limitation**

Appellant has presented three separate arguments regarding the process limitation, i.e., "said coating being deposited by ion beam assisted deposition," recited in claim 1, drawn to an article. In this regard, appellant asserts the following: a) the subject specification demonstrates that the recited process step produces a materially different product; b) that the claim is in allowable form because it complies with MPEP 2173.05(p); and c) that the process limitation at issue is entitled to patentable weight in view of the Federal Circuit's decision in *Atlantic Thermoplastics Co. v. Faytex Corp.* For reasons discussed below, each of these arguments have been considered, but are not found to be persuasive.

As an initial matter, the Examiner notes that with respect to product-by-process claims, MPEP 2113 states that "[t]he Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). In the instant case, the claimed product appears to be the same or similar to that of the prior art, since the claims are directed to a Y-TZP substrate with a coating comprising alumina formed thereon, and such a construction is

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suggested by the prior art. Clearly then, the claimed product appears to be the same or similar to that of the prior art and the burden is on the applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.

**a. The subject specification does NOT demonstrate that the recited process step produces a materially different product.**

Appellant first asserts that certain passages in the subject specification show that the recited process step, i.e., "said coating being deposited by ion beam assisted deposition," produces a product which is materially different than the applied prior art. The Examiner has carefully reviewed these passages and found no such disclosure.

The portions of the specification relied upon by appellant, i.e., paragraphs 17 and 21, merely discuss, in very general terms, aspects of coatings obtained by ion beam assisted deposition. These passages do NOT, however, represent a comparison with any other specific process, let alone that of the applied prior art. That is, no data or other measurable indicia by which to compare ion beam assisted deposition with other methods are presented. Moreover, to the extent that other processes are mentioned in passing, this does not include the method disclosed in the applied prior art. Accordingly, the passages relied upon by appellant are of little or no probative value with respect to the applied prior art and this argument is not persuasive.

**b. The claims comply with MPEP 2173.05(p).**

The Examiner agrees with appellant's assertion that the claims at issue are in compliance with MPEP 2175.05(p). As appellant is well aware, MPEP 2173.05(p) is directed to issues regarding product-by-process claims as they relate to 35 USC 112, second paragraph. The Examiner has not asserted that the instant claims fail to comply with this section of the statute.

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Accordingly, it is not seen how this argument is relevant with respect to the 103 rejection at issue and this argument is not persuasive as it relates to this ground of rejection.

**c. The process limitation at issue is NOT entitled to patentable weight in view of the Federal Circuit's decision in *Atlantic Thermoplastics Co. v. Faytex Corp.*, absent evidence that the process step produces a materially different product.**

Appellant relies on *Atlantic Thermoplastics* for the proposition that "process terms in product-by-process claims served as limitations in determining infringement" (Appeal Brief at page 4). In the final rejection, the Examiner noted that the court in *Atlantic Thermoplastics* was addressing product-by-process claims in the context of infringement and NOT *ex parte* prosecution. In response to this statement, appellant asserts that "[t]he Examiner offers no support for the distinction between infringement and ex parte analysis, nor does the *Atlantic Thermoplastics* court so distinguish" (Appeal Brief at pages 4-5).

The Examiner must disagree with appellant's statement and, indeed, appellants characterization of *Atlantic Thermoplastics*. The court in *Atlantic Thermoplastics* specifically and unequivocally notes that process limitations are treated differently during infringement and ex parte proceedings. Indeed, in the paragraph following the portion of *Atlantic Thermoplastics* relied upon by appellant, the court states that "[t]his court recognizes that product-by-process claims will receive different treatment for administrative patentability determinations than for judicial infringement determinations." *Atlantic Thermoplastics* at 1491. In the present case, the Examiner has applied the appropriate criteria regarding product-by-process claims; that set forth in MPEP 2113.



In light of the above, appellant's arguments regarding the recited process limitation have been fully considered but are not found to be persuasive.

**2. Claims 1-4, 13 and 14 are NOT patentable over Schubert in view of**

**Hida**

In the Appeal Brief at page 5, appellant argues that Schubert fails to teach a "definable coating on the surface of the treated body" and states that Schubert does not mention the word coating. Clearly, this is not the case, since Schubert explicitly states that the zirconia substrate is coated. For instance, at page 160, first full paragraph, Schubert discusses "coated" versus "uncoated" materials; the coated materials are those made in accordance with the Schubert disclosure.

Similarly, at page 160 in the section titled "CONCLUSIONS," in summarizing the disclosure Schubert states that "[t]he combination of a fine-grained TZP bulk with a PSZ-type coating seems promising" (emphasis added). Accordingly, appellant's arguments notwithstanding, Schubert clearly teaches a coating, as presently claimed.

Next, appellant argues that Schubert fails to teach an alumina coating. The Examiner acknowledges this fact and it is for this reason that Schubert was applied in combination with Hida. It is well settled that, "[o]ne cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references." See MPEP 2145 citing to *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); and *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the present case, attacking Schubert is not persuasive, since Hida was relied on for the teaching of alumina.

Additionally, appellant states that "[a]pplicant does not teach a stable phase of zirconia, but teaches a coating of alumina . . . " (Appeal Brief at page 6, second full paragraph). Thus, it appears that appellant wishes to interpret the claims as employing closed claim language, thereby excluding materials other than alumina from the coating. The claim language on its face, however, does not support such an interpretation. The present claims recite "a coating of alumina." This recitation clearly is directed to open claim language. Thus, the claims merely require that the claimed coating comprise alumina. The applied combination of references suggests such coatings.

Next, appellant asserts that the combination of references is not appropriate, since "alumina is not a stabilizer for zirconia, while magnesia, calcia, yttria, and magnesia are" (Appeal Brief at page 7, first full paragraph). Appellant's assertion is unsupported and clearly contradicted by the applied prior art. Schubert teaches that in addition to yttria ( $Y_2O_3$ ), "[s]imilar fully- or partially-stabilized layers were formed by sintering in other stabilizing oxides, e.g.,  $CeO_2$  [ceria],  $MgO$  [magnesia] and  $CaO$  [calcia]" (page 158, last full paragraph). Hida teaches that zirconia may be stabilized "with stabilizers such as alumina [ $Al_2O_3$ ], magnesia, calcia, yttria, ceria, and the like" (Hida at col. 27, lines 3-4). Hida clearly teaches that alumina is a stabilizing oxide for zirconia, as are the other species disclosed therein and in Schubert. Thus, appellant's assertion is unsupported by evidence and directly rebutted by the express teachings of the applied prior art.

Finally, appellant states that "[c]onsidering Schubert and Hida in combination does not anticipate Applicant's invention and therefore claims 1 and 13 are allowable and claims 2-4 and 14 are allowable as further limitations on allowable independent claims" (Appeal Brief at page 8,

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first paragraph). This statement is not germane to the issues at hand, since the rejection was made pursuant to section 103 (obviousness) of the statute and not section 102 (anticipation). The Examiner agrees that the applied references do not anticipate the instant claims; it is for this reason that the references were applied in combination as rendering the claims obvious under section 103.

In light of the above, appellant's arguments regarding Schubert in view of Hida have been fully considered but are not found to be persuasive.

**B. Claim 5 was finally rejected under 35 U.S.C. 103(a) as being unpatentable over Schubert in view of Hida as applied to claims 1-4 above, and further in view of Toibana (USPN 4,507,224).**

With respect to this ground of rejection, appellant states that "[c]laim 5 is allowable as a further limitation on an allowable claim 1" (Appeal Brief at page 8). Since, as shown above, claim 1 is not patentable over Schubert in view of Hida, the rejection of claim 5 must stand.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

**(12) Specification Appendix**

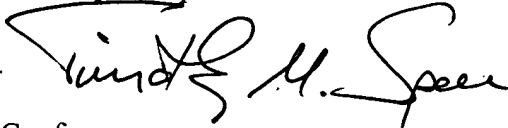
The Examiner notes that appellant included a section titled "Specification Appendix" in the Appeal Brief (see section "XI" at page 10). While the Examiner was unable to find a requirement for such an appendix in the rules, there appears to be no prohibition against this practice. Moreover, since nothing was included in this appendix, the Examiner concludes that the inclusion of this section does not render the Appeal Brief defective.

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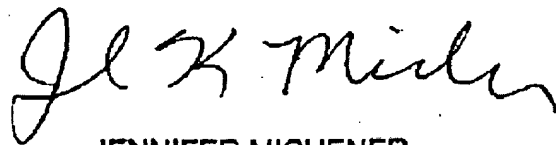
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Timothy M. Speer



Conferees:



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11/13/02